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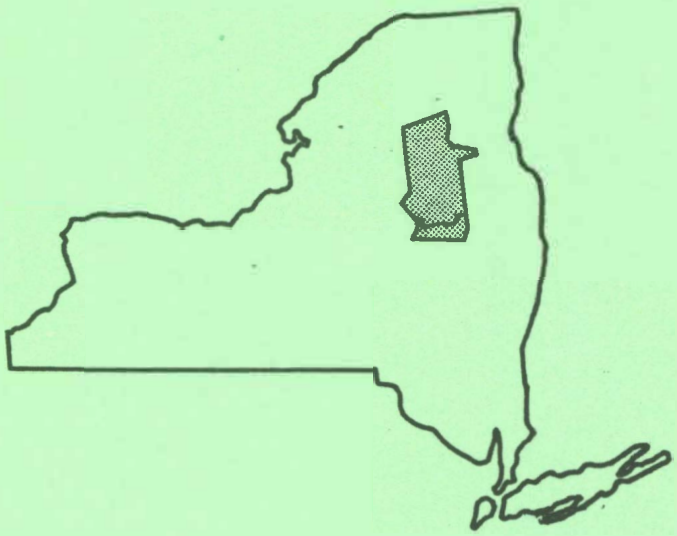
Forest Statistics for

NEW YORK

Forest District No. 10



Forest Statistics Series:
New York No. 10

Northeastern Forest Experiment Station

Upper Darby, Pennsylvania
Ralph W. Marquis, Director

1954

United States Department of Agriculture • Forest Service

FOREWORD

This is the tenth in a series of reports about forest areas and timber volumes in the State of New York. These reports are products of the forest survey of the Northeast, carried on by the Northeastern Forest Experiment Station as part of the nationwide forest survey being made by the Forest Service, U. S. Department of Agriculture.

A similar report has been prepared for each of the other forest districts in the State of New York. The primary purpose of these reports is to provide basic forest statistics for the administrative use of the New York Department of Conservation.

The New York Department of Conservation aided the Northeastern Station greatly in the forest survey of the State. The Department not only provided the aerial photographs used in the survey, but also cooperated in many other phases of the work.

Field work in Forest District No. 10 was supervised by N. B. Griswold. The statistical procedures for obtaining field-inventory data were developed by C. Allen Bickford. Computations were made under the supervision of Roland H. Ferguson.

Ralph W. Marquis

Ralph W. Marquis
Director

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FOREST STATISTICS FOR NEW YORK FOREST DISTRICT NO. 10

Prepared by

Division of Forest Economics

Northeastern Forest Experiment Station
Forest Service, U.S. Dept. Agriculture

GENERAL

New York Forest District No. 10 is located in the central part of the State. It includes only two counties: Fulton and Hamilton. All but the southern half of Fulton County is within the boundaries of the Adirondack Park.[1]

That part of the District in the Park is rough, mountainous, stony land. The southern part, which lies in the Mohawk Valley, is gently to strongly sloping. The forest land drains into four watersheds; namely the Hudson River, Mohawk River, Lake Ontario, and St. Lawrence River. The largest of these is the Hudson River watershed, which includes 33 percent of the commercial forest land. The remaining acreage is fairly evenly divided among the other three drainages.

The District is predominantly in forest land. Agricultural use, with principal emphasis on dairying, is concentrated in the southern half of Fulton County.

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[1] THE ADIRONDACK PARK AS SHOWN ON MAPS OF NEW YORK STATE INCLUDES BOTH STATE AND PRIVATE LANDS.

Forest Area

The total land area of this District amounts to about 1,436,000 acres. The forest-land area is 1,301,000 acres. Nearly 703,000 acres are reserved from timber cutting. This is the acreage in the State Forest Preserve.[2] In addition to this noncommercial forest land, there are 3,000 acres of nonproductive forest land.

The remaining 595,000 acres are classed as commercial forest land. Hamilton County contains 70 percent of this.

Ownership

Practically all of the commercial forest land is privately owned. Industrial and other nonfarm owners own 94 percent and farmers own 5 percent. The 1 percent that is publicly owned is mostly in municipal holdings. State forests[3] and county holdings are minor.

Forest Types

Hardwood types occupy 79 percent of the forest area. The sugar maple-beech-yellow birch type is predominant, making up 63 percent of the forest. The major softwood types are spruce-fir and spruce-fir-hardwood. Together they account for 17 percent of the forest land.

Forest Stands

About 63 percent of the stands are of sawtimber size and they carry 94 percent of the board-foot volume. But one-third of the area, in sawtimber stands of more than 5,000 board feet per acre, contains more than two-thirds of the board-foot volume.

Poletimber stands occupy 23 percent of the commercial forest land; seedling-and-sapling stands and nonstocked areas about 14 percent.

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[2] THE STATE FOREST PRESERVE COMPRISES LAND OWNED BY THE STATE IN THE 12 FOREST PRESERVE COUNTIES IN THE ADIRONDACKS AS DEFINED BY LAW.

[3] OUTSIDE THE LIMITS OF THE ADIRONDACK PARK AND NOT SUBJECT TO THE CONSTITUTIONAL PROHIBITION AGAINST CUTTING, WHICH APPLIES TO THE STATE FOREST PRESERVE LANDS.

Timber Volume

The commercial forests contain 2.6 billion board feet (log scale, International $\frac{1}{4}$-inch rule) of live sawtimber. About 69 percent of this is in the hardwood species--63 percent in sugar maple, beech, and yellow birch alone. Spruce and hemlock, the only abundant softwoods, make up 28 percent of the total board-foot volume.

The growing stock amounts to about 748 million cubic feet, most of it in the larger trees. Sawtimber trees have a volume of 563 million cubic feet and poletimber trees 185 million. The total cubic volume is equivalent to 9.3 million rough standard cords.

Blowdown Damage

The survey was completed before the severe windstorm of November 25, 1950. The storm changed the stand-size distribution, the volume of timber, and the growing stock. While estimates of damage have been prepared from basic data provided by the New York State College of Forestry, the amount of damage has not been deducted from the accompanying tables since there is no satisfactory way of distributing the loss by forest type or species.

There are 563,500 acres of forest land on which there is some windthrown timber. Of this, about 166,500 acres are commercial forest land. The remaining 397,000 acres are in the State Forest Preserve.

Of the total blowdown area in the commercial forest land, about 129,500 acres had only light windthrow, not enough to change the stand-size class of the stand. Heavier windthrow occurred on 37,000 acres, of which 36,000 acres were in sawtimber stands and 1,000 acres in poletimber stands. Of the 36,000 acres in sawtimber stands, 19,700 acres were changed to poletimber and seedling-and-sapling stands.

There was a total loss of 261.3 million board feet (more than 10 percent of the total board-foot volume) of sawtimber on the commercial forest land. The volume of windthrown sawtimber in the sawtimber stands amounted to 258.3 million board feet. The volume in sawtimber stands is further reduced by the amount of standing timber on the 19,700 acres that changed from sawtimber stand-size classes

to poletimber and seedling-and-sapling stands. The greatest loss in sawtimber was in Hamilton County--252.7 million board feet. Of the total growing stock, 64.6 million cubic feet (nearly 9 percent) was blown down.

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Table 1.--Land area by major classes, 1950

Class of land[1]	Area	
	Acres	Percent
Forest land:		
Commercial	595,100	41
Noncommercial[2]	705,900	49
All forest land	1,301,000	90
Nonforest land	135,200	10
All land[3]	1,436,200	100

[1] See Appendix for definitions.

[2] Includes 3,100 acres of nonproductive forest land and the net forest-land area, excluding water area, in the State Forest Preserve. The total area of the Preserve in this District is 714,243.03 acres. State ownership figures are as of September 30, 1952.

[3] Census of Agriculture, 1950. Water areas of 1 to 40 acres are included in the estimate of nonforest acreage.

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Table 2.--Land area and commercial forest-land area by county, 1950

County	Land area	Commercial forest-land area	
	Acres	Acres	Percent
Fulton	318,100	171,500	54
Hamilton	1,118,100	423,600	38
All	1,436,200	595,100	41

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Table 3.--Commercial forest-land area by ownership, 1950

Ownership class	Acreage held	
	Acres	Percent
Private:		
Farm forest land[1]	30,300	5
Other private	557,700	94
Total private	588,000	99
Public:		
Municipal	5,700	1
State[2]	1,200	(3/)
County	200	(3/)
Total public	7,100	1
All ownerships	595,100	100

[1]Census of Agriculture, 1950.

[2]Includes commercial forest land administered by the New York State Conservation Department as State Forests amounting to 1,220.21 acres. All State ownership figures are as of September 30, 1952.

[3]Less than 1 percent.

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Table 4.--Commercial forest-land area by forest type, 1950

Forest type	Area	
	Acres	Percent
Spruce-fir	65,200	11
Spruce-fir-hardwood	35,700	6
White pine	23,900	4
Sugar maple-beech-yellow birch	374,700	63
Aspen	49,900	8
Other hardwood types	45,700	8
All types	595,100	100

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Table 5.--Commercial forest-land area by forest-type group and stand-size class, 1950

Forest-type group	Saw-timber stands	Pole-timber stands	Seedling-and-sapling stands and other areas	Total area
	Acres	Acres	Acres	Acres
Spruce-fir	28,400	32,100	4,700	65,200
Other softwood types	34,600	17,100	7,900	59,600
Sugar maple-beech-yellow birch	293,600	58,500	22,600	374,700
Other hardwood types	18,800	29,400	47,400	95,600
All types	375,400	137,100	82,600	595,100
Percent	63	23	14	100

Table 6.--Commercial forest-land area by stand-size class and watershed, 1950

Stand-size class	Watershed		Total
	Hudson and Mohawk Rivers	Lake Ontario and St. Lawrence River	
	Acres	Acres	Acres
Sawtimber stands:			
More than 5,000 board feet per acre	90,000	104,700	194,700
1,500 to 5,000 board feet per acre	105,200	75,500	180,700
Poletimber stands	90,900	46,200	137,100
Other	53,100	29,500	82,600
Total	339,200	255,900	595,100
Percent	57	43	100

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Table 7.--Net volume of live timber on commercial forest land by species, 1950

Species	Growing stock[1]		Saw-timber[2]
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
Spruce	150,700	1,883,700	554,500
Hemlock	60,300	753,700	189,200
Fir	17,100	213,800	30,700
White pine and other softwoods	12,400	155,000	26,400
All softwoods	240,500	3,006,200	800,800
Yellow birch	170,900	2,136,200	745,300
Sugar maple	126,600	1,582,500	477,700
Beech	123,800	1,547,500	433,700
Red maple	44,200	552,500	68,700
Black cherry	6,500	81,200	26,500
Basswood	7,500	93,800	23,200
Other hardwoods	27,900	348,800	42,700
All hardwoods	507,400	6,342,500	1,817,800
All species[3]	747,900	9,348,700	2,618,600

[1]Includes sawtimber. Cord equivalent in rough standard cords is assumed to average 80 cubic feet of peeled wood.

[2]Log scale, International $\frac{1}{4}$-inch rule.

[3]Excludes the net volume of cull trees--19,000,000 cubic feet.

Table 8.--Net volume of live timber on commercial forest land by diameter class, 1950

Diameter class[1] (in inches at breast height)	Growing stock	Saw-timber
	Thousand cu.ft.	Thousand bd.ft.
Softwoods:		
6	23,000	--
8	38,300	--
10	29,800	110,500
12	38,400	163,300
14	36,800	166,000
16	30,400	135,600
18	20,100	99,800
20	9,900	52,800
22 +	13,800	72,800
All softwoods	240,500	800,800
Hardwoods:		
6	33,400	--
8	44,200	--
10	46,100	--
12	49,300	193,000
14	59,600	265,500
16	65,700	289,600
18	54,500	257,700
20	35,600	182,000
22	47,000	242,000
24	24,600	127,600
26	12,100	67,500
28	9,100	52,600
30 +	26,200	140,300
All hardwoods	507,400	1,817,800
Total	747,900	2,618,600

[1] The midpoint of each 2-inch diameter class is indicated.

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Table 9.--Net volume of live timber on commercial forest land by forest type, 1950

Forest type	Growing stock		Saw-timber
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
Spruce-fir	96,600	1,207,500	303,300
Other softwood types	73,900	923,700	268,900
Sugar maple-beech-yellow birch	518,600	6,482,500	1,874,100
Other hardwood types	58,800	735,000	172,300
All types	747,900	9,348,700	2,618,600

Table 10.--Average net volume of live timber per acre of commercial forest land, by stand-size class, 1950

Stand-size class (and acreage of each class)	Growing stock	Sawtimber
	Cubic feet	Board feet
Sawtimber stands:		
More than 5,000 bd.ft. per acre (194,700 acres)	2,160	9,210
1,500 to 5,000 bd.ft. per acre (180,700 acres)	1,240	3,790
Poletimber stands:		
More than 600 cu.ft. per acre (98,200 acres)	810	1,200
200 to 600 cu.ft. per acre (38,900 acres)	440	430
Other[1] (82,600 acres)	90	70
Average, all classes[2] (595,100 acres)	1,260	4,400

[1]Includes seedling-and-sapling stands and non-stocked areas.

[2]Hardwoods constitute 68 percent of the total volume. The average cubic volume in all stand-size classes is equivalent to 16 cords per acre.

APPENDIX

DEFINITIONS OF TERMS

Forest Areas

Forest-land area.--Includes (a) lands that are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which has not been developed for other use; and (c) afforested areas. (Forest tracts of less than 1 acre, isolated strips of timber less than 120 feet wide, and abandoned fields and pastures not yet 10 percent stocked are excluded.)

Commercial forest-land area.--Forest land that is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest-land area.--Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions.

Forest Types

Forest types are classified according to the species or species group that accounts for the major portion of the stand in terms of cubic feet in sawtimber and poletimber stands, or the number of stems in seedling-and-sapling stands.

Stand-Size Classes

Sawtimber stands.--Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International $\frac{1}{4}$-inch rule.

Poletimber stands.--Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches and larger) trees, and with at least half the minimum stocking in poletimber trees. (Poletimber stands carry at least 200 cubic feet per acre.)

Seedling-and-sapling stands.--Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling-and-sapling trees.

Other areas.--Forest-land areas not qualifying as sawtimber, poletimber, or seedling-and-sapling stands. (Includes nonstocked areas.)

Tree Classes

Sawtimber trees.--Trees of commercial species that contain at least one merchantable sawlog as defined by regional practice and that are of the following minimum diameters at breast height (d.b.h.): Softwoods 9.0 inches and hardwoods 11.0 inches. (All butt sawlogs are considered merchantable. Where the butt is defective, upper sawlogs are considered merchantable if they account--in terms of aggregate net volume--for 50 percent or more of the gross volume below the top of the uppermost sawlog. Softwood sawlogs are at least 6.0 inches in diameter inside bark at small end; 8 to 16 feet in length; sound and straight enough to be manufactured into standard lumber. The smaller logs are generally free of surface defects other than small tight knots. Hardwood sawlogs are at least 8.0 inches in diameter inside bark at small end; 8 to 16 feet in length; suitable for sawing into standard lumber, construction timbers, or ties.)

Poletimber trees.--Trees 5.0 inches d.b.h. and larger of commercial species that do not meet the specifications for sawtimber trees but do meet regional specifications of species, soundness, and freedom from defect. (These are the trees that are straight and clear enough to make sawtimber trees eventually.)

Seedling-and-sapling trees.--Trees of commercial species less than 5.0 inches in diameter at breast height.

Cull trees.--Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Timber Volume

Growing stock.--Net volume, in cubic feet, of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) inside bark.

This volume is also given in rough standard cords (bark included). Cord volume is derived from growing stock by applying a factor of 80 cubic feet per cord.

Live sawtimber volume.--Net volume in board feet, International $\frac{1}{4}$-inch rule, of live sawtimber trees.

FOREST-SURVEY METHODS

These forest statistics are based on information gathered from aerial photographs and from sample plots examined on the ground.

First, photo-interpretation plots were marked off on the aerial photographs. These plots were distributed uniformly by mechanical means over photographs of the entire district. Trained photo-interpreters then classified each photo-plot as either forest or nonforest. Forest plots were classified further according to stand-size and forest type.

Field crews inspected some of the photo-plots on the ground. Enough plots were selected at random so as to attain a specified level of statistical accuracy. Species and volume data were collected on these ground plots; and the photo classification of stand size and forest type was verified or--if necessary--changed.

The survey was designed for maximum efficiency in estimating total cubic volume to meet the national standards of accuracy.

ACCURACY OF THE ESTIMATES

The estimates in this report may contain two kinds of error. First, photo-interpreters may make mistakes of judgment and fieldmen may make mistakes in measuring or record-

ing. There is no practical way of finding out just how often such errors occur. But they are kept to a minimum by closely checking all phases of the work.

The second kind of error is associated with sampling procedures. The size of this sampling error can be measured. In Forest District No. 10 the probabilities are 2 out of 3 that the actual forest area is within ± 1.4 percent of the estimated forest area, that the actual cubic-foot volume is within ± 4.4 percent of the estimated cubic-foot volume, and that the actual board-foot volume is within ± 6.6 percent of the estimated board-foot volume. This does not include any mistakes in measurement or classification.

These percentages show that the area estimates are more accurate than the volume estimates, and that the cubic-foot estimates are more accurate than the board-foot estimates.

In each of the tables, the total figures are more accurate than the subtotals. The subtotals are more accurate than any of the individual figures. Figures that are small in relation to totals are subject to larger sampling errors.

SPECIES TALLIED

The various commercial tree species tallied in New York Forest District No. 10 are listed below. Approved common names[4] are shown in parentheses if these differ from the brief name used in the tables. Other tree species may occur in the area, but unless they were tallied on the field plots they were not included in the following list.

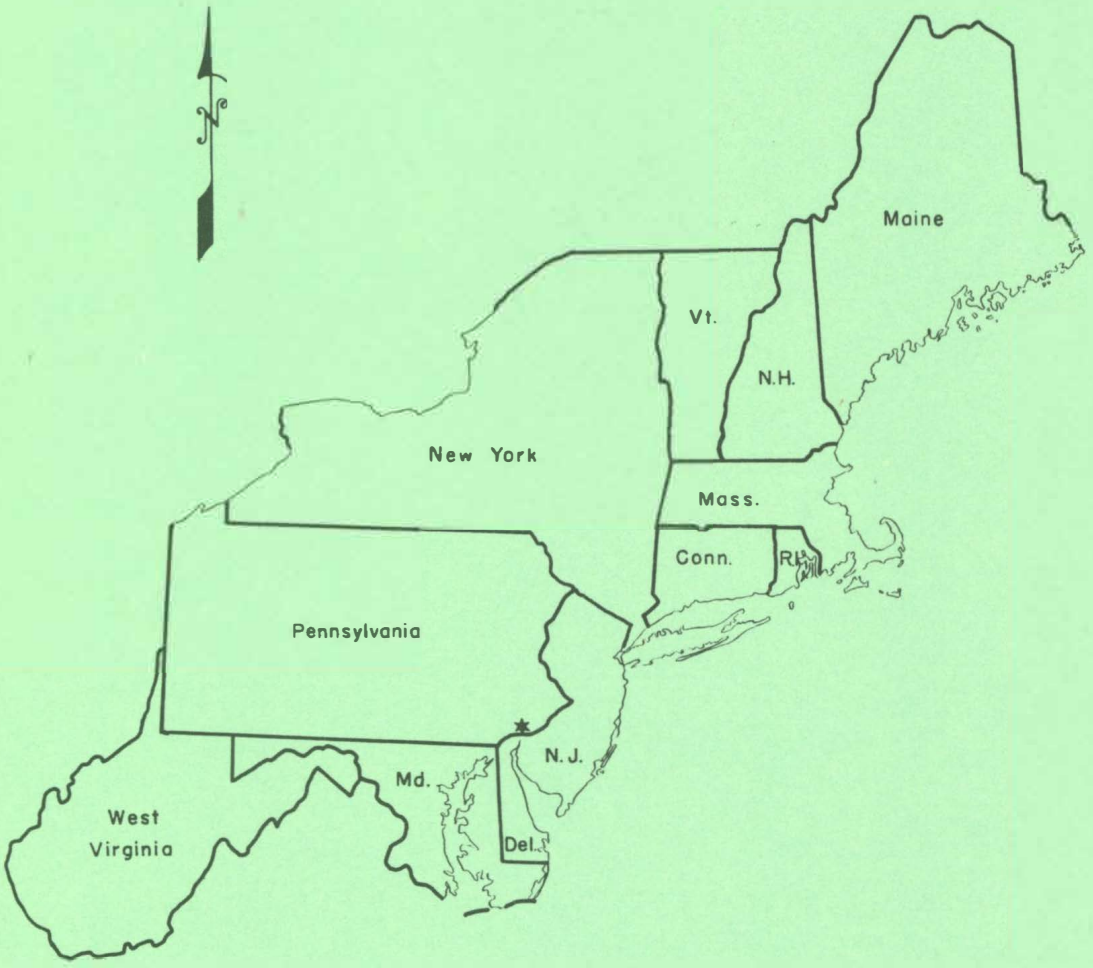
Softwoods

Spruce (Red spruce)	- Picea rubens
Hemlock (Eastern hemlock)	- Tsuga canadensis
Fir (Balsam fir)	- Abies balsamea
White pine (Eastern white pine)	- Pinus strobus
(Red pine)	- Pinus resinosa
Other softwoods	
(Northern white-cedar)	- Thuja occidentalis

[4] LITTLE, ELBERT L. JR. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA). U. S. DEPT. AGR. AGR. HANDB. 41, 472 PP. 1953.

Hardwoods

Yellow birch (Yellow birch)	- Betula alleghaniensis
(Sweet birch)	- Betula lenta
Sugar maple	- Acer saccharum
Beech (American beech)	- Fagus grandifolia
Red maple	- Acer rubrum
Black cherry	- Prunus serotina
Basswood (American basswood)	- Tilia americana
Other hardwoods	
(Northern red oak)	- Quercus rubra
(Paper birch)	- Betula papyrifera
(Ash)	- Fraxinus species
(Elm)	- Ulmus species
(Butternut)	- Juglans cinerea
(Aspen)	- Populus species



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